If you are using a printed copy of this procedure, and not the on-screen version, then you MUST make sure the dates at the bottom of the printed copy and the on-screen version match.
The on-screen version of the Collider-Accelerator Department Procedure is the Official Version.
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C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

4.120.10.e 10 O'Clock (PEER 15) Mode 24 Tests

C-A-OPM Procedures in which this Attachment is used.		
4.120.10		

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials

Approved: ***Signature on File*** _____
Collider-Accelerator Department Chairman Date

V. Castillo

4.120.10.e 10 O'Clock (PEER 15) Mode 24 Tests

PASS ANNUAL ACCEPTANCE TEST PROTOCOL

Division A Software Filename and Checksum: Title:_____ Checksum: _____

Division B Software Filename and Checksum: Title:_____ Checksum: _____

Initial testing complete:

Test Team Leader's Name (Print): _____ Life Number: _____

Test Team Leader's Name (Sign): _____ Date: _____/____/_____

Acceptance test procedure complete (following repairs and retesting if required):

Test Team Leader's Name (Print): _____ Life Number:_____

Test Team Leader's Name (Sign): _____ Date:_____/____/_____

Test results reviewed by:

Safety Section Head's Name (Print):_____ Life Number:_____

Safety Section Head's Name (Sign):_____ Date: _____/____/_____

Test results accepted by Radiation Safety Committee:

RSC Member's Name (Print):_____ Life Number: _____

RSC Member's Name (Sign):_____ Date: _____/____/_____

1.1 Verify necessary conditions for Mode 24

	SET	**CD Key switch for**	**XY ARCS**
□	**VERIFY**	**CD Key switch for**	**XY ARCS**
	PLACE	**Peer 15** in **Mode 16**	
□	**VERIFY**	**Peer 15** is in **Controlled Access**	**MODE 16**
	CLOSE	**Peer 15 gate:** 11GS1	
	RESET	**Peer 15 gates:** 9GS1, 9EL1, 9GI1, 9ED1, 10GE1, 10GI1, 10EL1, 10ED1	
□	**VERIFY**	**Peer 15 gates:** □ 9GS1, □ 9EL1, □ 9GI1, □ 9ED1, □ 10GE1, □ 10GI1, □ 10EL1, □ 10ED1 are	**RESET**
	SWEEP	**Peer 15 Zones:** 9Z1, 10Z1, 10Z2	
□	**VERIFY**	**Peer 15 Zones:** □ 9Z1, □ 10Z1, □ 10Z2 are	**SWEPT**
	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**Peer 15** is in **No Access**	**MODE 24**
	RECORD	**Duration [_____ secs]** of **Beam Imminent Alarm**	
□	**VERIFY**	**Red No Access Light** at Gate **10GE1**	**ILLUMINATED**
	PLACE	**Peer 15** in **Mode 16**	
□	**VERIFY**	**Peer 15** is in **Controlled Access**	**MODE 16**
	REMOVE	**Reset** from gate **10GE1**	
□	**VERIFY**	**MCR** sees gate **10GE1** is	**NOT RESET**
	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**Attempt** to place **Peer 15** in **No Access Mode**	**FAIL**
	RESET	Gate **10GE1**	
□	**VERIFY**	**MCR** sees gate **10GE1**	**RESET**
	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	PLACE	**Peer 15** in **Mode 16**	
□	**VERIFY**	**Peer 15** is in **Controlled Access**	**MODE 16**
	REMOVE	**Sweep** from zone **9Z1**	
□	**VERIFY**	**MCR** sees zone **9Z1** is	**NOT SWEPT**
	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**Attempt** to place **Peer 15** in **No Access Mode**	**FAIL**
	SWEEP	Zone **9Z1**	
□	**VERIFY**	**MCR** sees zone **9Z1**	**SWEPT**
	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	PLACE	**Peer 15** in **Mode 16**	
□	**VERIFY**	**Peer 15** is in **Controlled Access**	**MODE 16**

□ **Check for test acceptance of Verify necessary conditions for Mode 24**

1.2 Verify System Response to Opening a Gate while in Mode 24

□	**VERIFY**	**CD Key switch for**	**XY ARCS**
	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	WAIT	For **Beam Imminent Alarm** to stop sounding	
	SET	**RHIC Primary Beam Stop Withdraw command**	**OUT**
□	**VERIFY**	**MCR** sees **RHIC Injection CD**	**DISABLED**
□	**VERIFY**	**MCR** sees **RHIC Permit Link**	**ENABLED**
□	**VERIFY**	**MCR** sees **RHIC Injection inhibit**	**OFF**
□	**VERIFY**	**MCR** sees **RHIC ring inhibit**	**OFF**
	FOLLOW	**Test schedule in Table 1, below**	

Open gate	Verify peer 15 go to Mode 2	Verify sweep lost	Verify RHIC ring inh ON	Verify peer 15 Permit Link is disabled	Verify RHIC Inj. Inh ON	Place peer 15 in Mode 24 & alarm stop	Set RHIC prmy BS w/draw cmd OUT	Verify RHIC ring inh ON	Verify peer 15 Permit Link is enabled	Verify RHIC Inj. Inh OFF	Go to next gate
9ED1	□	□	□	□	□		□		□	□	
10GE1	□	□	□	□	□		□		□	□	

Table 1- Test of Gates in Mode 24

□ **Check for test acceptance of System Response to Opening a Gate while in Mode 24**

1.3 Verify Entry gates are securely locked in Mode 24

	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	WAIT	For **Beam Imminent Alarm** to stop sounding	
	OPEN	Gate **10GE1** with **#14 Key** and **Simultaneous Release**	
□	**VERIFY**	Attempt to open gate **10GE1** with **#14 Key** and **Simultaneous Release**	**FAIL**
	OPEN	Gate **10GE1** with **Blue Card**	
□	**VERIFY**	Attempt to open gate **10GE1** with **Blue Card**	**FAIL**

□ **Check for test acceptance of Verify Entry gates are securely locked in Mode 24**

1.4 Verify System Response to Pulling a Crash Cord while in Mode 24

Test in Zone 9Z1

☐	**VERIFY**	**CD Key switch for**	**XY ARCS**
	PLACE	**Peer 15** in **Mode 24**	
☐	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	WAIT	For **Beam Imminent Alarm** to stop sounding	
	SET	**RHIC Primary Beam Stop Withdraw command**	**OUT**
☐	**VERIFY**	**MCR** sees **RHIC Injection CD**	**DISABLED**
☐	**VERIFY**	**MCR** sees **RHIC Permit Link**	**ENABLED**
☐	**VERIFY**	**MCR** sees **RHIC Injection inhibit**	**OFF**
☐	**VERIFY**	**MCR** sees **RHIC ring inhibit**	**OFF**
	PULL	Any **Zone 9Z1 crash cord [System #: _____]**	
☐	**VERIFY**	**Peer 15** goes to	**MODE 2**
☐	**VERIFY**	**Sweep** is	**LOST**
☐	**VERIFY**	**MCR** sees **RHIC Injection CD**	**DISABLED**
☐	**VERIFY**	**MCR** sees **RHIC Permit Link**	**DISABLED**
☐	**VERIFY**	**MCR** sees **RHIC Injection inhibit**	**ON**
☐	**VERIFY**	**MCR** sees **RHIC ring inhibit**	**ON**
	REARM	**Crash device**	
	RESET	**Crash at MCR**	
☐	**VERIFY**	**Crash is**	**RESET**
	PLACE	**Peer 15** in **Mode 24**	
☐	**VERIFY**	**Peer 15** is in **Beam Imminent Mode**	**MODE 24**
	PULL	Any **Zone 9Z1 crash cord [System #: _____]** when alarm starts sounding	
☐	**VERIFY**	**Beam Imminent alarm**	**STOPS**
☐	**VERIFY**	**Peer 15** has moved to	**MODE 2**
☐	**VERIFY**	**MCR** sees **Zone 9Z1**	**CRASHED**
	PLACE	**Peer 15** in **Mode 8** (Restricted Access)	
☐	**VERIFY**	**Attempt** to go to **Mode 8**	**FAIL**
	REARM	**Crash device**	
	RESET	**Crash at MCR**	
☐	**VERIFY**	**Crash is**	**RESET**
	PLACE	**Peer 15** in **Mode 8**	
☐	**VERIFY**	**MCR** sees **Peer 15** in **Restricted Access**	**MODE 8**

Test in Zone 10Z1

	PLACE	**Peer 15** in **Mode 24**	
☐	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	WAIT	For **Beam Imminent Alarm** to stop sounding	

	SET	**RHIC Primary Beam Stop Withdraw command**	**OUT**
□	**VERIFY**	**MCR** sees **RHIC Injection CD**	**DISABLED**
□	**VERIFY**	**MCR** sees **RHIC Permit Link**	**ENABLED**
□	**VERIFY**	**MCR** sees **RHIC Injection inhibit**	**OFF**
□	**VERIFY**	**MCR** sees **RHIC ring inhibit**	**OFF**
	PULL	Any **Zone 10Z1 crash cord [System #: _____]**	
□	**VERIFY**	**Peer 15** goes to	**MODE 2**
□	**VERIFY**	**Sweep** is	**LOST**
□	**VERIFY**	**MCR** sees **RHIC Injection CD**	**DISABLED**
□	**VERIFY**	**MCR** sees **RHIC Permit Link**	**DISABLED**
□	**VERIFY**	**MCR** sees **RHIC Injection inhibit**	**ON**
□	**VERIFY**	**MCR** sees **RHIC ring inhibit**	**ON**
	REARM	**Crash device**	
	RESET	**Crash at MCR**	
□	**VERIFY**	**Crash is**	**RESET**
	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**Peer 15** is in **Beam Imminent Mode**	**MODE 24**
	PULL	Any **Zone 10Z1 crash cord [System #: _____]** when **alarm starts sounding**	
□	**VERIFY**	**Beam Imminent alarm**	**STOPS**
□	**VERIFY**	**Peer 15** has moved to	**MODE 2**
□	**VERIFY**	**MCR** sees **Zone 10Z1**	**CRASHED**
	PLACE	**Peer 15** in **Mode 8** (Restricted Access)	
□	**VERIFY**	**Attempt** to go to **Mode 8**	**FAIL**
	REARM	**Crash device**	
	RESET	**Crash at MCR**	
□	**VERIFY**	**Crash is**	**RESET**
	PLACE	**Peer 15** in **Mode 8**	
□	**VERIFY**	**MCR** sees **Peer 15** in **Restricted Access**	**MODE 8**
	Test in Zone 10Z2		
	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	WAIT	For **Beam Imminent Alarm** to stop sounding	
	SET	**RHIC Primary Beam Stop Withdraw command**	**OUT**
□	**VERIFY**	**MCR** sees **RHIC Injection CD**	**DISABLED**
□	**VERIFY**	**MCR** sees **RHIC Permit Link**	**ENABLED**
□	**VERIFY**	**MCR** sees **RHIC Injection inhibit**	**OFF**
□	**VERIFY**	**MCR** sees **RHIC ring inhibit**	**OFF**

	PULL	Any **Zone 10Z2 crash cord [System #: _____]**	
□	**VERIFY**	**Peer 15** goes to	**MODE 2**
□	**VERIFY**	**Sweep** is	**LOST**
□	**VERIFY**	**MCR** sees **RHIC Injection CD**	**DISABLED**
□	**VERIFY**	**MCR** sees **RHIC Permit Link**	**DISABLED**
□	**VERIFY**	**MCR** sees **RHIC Injection inhibit**	**ON**
□	**VERIFY**	**MCR** sees **RHIC ring inhibit**	**ON**
	REARM	**Crash device**	
	RESET	**Crash at MCR**	
□	**VERIFY**	**Crash is**	**RESET**
	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**Peer 15** is in **Beam Imminent Mode**	**MODE 24**
	PULL	Any **Zone 10Z2 crash cord [System #: _____]** when **alarm starts sounding**	
□	**VERIFY**	**Beam Imminent alarm**	**STOPS**
□	**VERIFY**	**Peer 15** has moved to	**MODE 2**
□	**VERIFY**	**MCR** sees **Zone 10Z2**	**CRASHED**
	PLACE	**Peer 15** in **Mode 8** (Restricted Access)	
□	**VERIFY**	**Attempt** to go to **Mode 8**	**FAIL**
	REARM	**Crash device**	
	RESET	**Crash at MCR**	
□	**VERIFY**	**Crash is**	**RESET**
	PLACE	**Peer 15** in **Mode 8**	
□	**VERIFY**	**MCR** sees **Peer 15** in **Restricted Access**	**MODE 8**
	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	WAIT	For **Beam Imminent Alarm** to stop sounding	
	SET	**RHIC Primary Beam Stop Withdraw command**	**OUT**
□	**VERIFY**	**MCR** sees **RHIC Injection CD**	**DISABLED**
□	**VERIFY**	**MCR** sees **RHIC Permit Link**	**ENABLED**
□	**VERIFY**	**MCR** sees **RHIC Injection inhibit**	**OFF**
□	**VERIFY**	**MCR** sees **RHIC ring inhibit**	**OFF**

□ **Check for test acceptance of Verify System Response to Pulling a Crash Cord while in Mode 24**

1.5 Verify System Response to ODH trip while in Mode 24

□ **VERIFY** **CD Key switch for** **XY ARCS**

PLACE **Peer 15** in **Mode 24**
□ **VERIFY** **MCR** sees **Peer 15** in **No Access** **MODE 24**
WAIT For **Beam Imminent Alarm** to stop sounding

SET **RHIC Primary Beam Stop Withdraw command** **OUT**

□ **VERIFY** **MCR** sees **RHIC Injection CD** on CD pg **DISABLED**
□ **VERIFY** **MCR** sees **RHIC Permit Link** **ENABLED**
□ **VERIFY** **MCR** sees **RHIC Injection inhibit** **OFF**
□ **VERIFY** **MCR** sees **RHIC ring inhibit** **OFF**
TRIP **ODH sensor** using test button, following **Table 2,** below

ODH sensor	Trip sensor	Verify Peer 15 stays in Mode 24	Verify BS withdraw cmd OUT	Verify Rhic ring inh OFF	Verify Permit link is enabled	Verify Rhic Inj. Inh OFF	Verify strobe on	Verify sonalert on	Verify fans & vents off	Go to
9AS2/A		□	□	□	□	□	□	□	□	
9AS2/B		□	□	□	□	□	□	□	□	Next ODH
10XAS1/A		□	□	□	□	□	□	□	□	
10XAS1/B		□	□	□	□	□	□	□	□	Next ODH
10AS1/A		□	□	□	□	□	□	□	□	
10AS1/B		□	□	□	□	□	□	□	□	End of test

Table 2 – Test of ODH sensors in Mode 24

□ **Check for test acceptance of Verify System Response to ODH trip while in Mode 24**

1.6 Test Emergency fan ON/OFF controls at 10GE1 in Mode 24

	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	WAIT	For **Beam Imminent Alarm** to stop sounding	
	PRESS	Emergency fan **ON** button at gate **10GE1**	
	WAIT	For **90 sec** timeout counter	
□	**VERIFY**	Fan **9EF2** is	**ON**
□	**VERIFY**	Fan **10EF1** is	**ON**
□	**VERIFY**	Fan **11EF1** is	**ON**
□	**VERIFY**	Fan **10XEF1** is	**ON**
□	**VERIFY**	Fan **10XEF2** is	**ON**
□	**VERIFY**	Fan **10XSF1** is	**ON**
□	**VERIFY**	Fan **10XSF2** is	**ON**
□	**VERIFY**	Vent **9AV1** is	**OPEN**
□	**VERIFY**	Vent **9AV2** is	**OPEN**
□	**VERIFY**	Vent **9AV3** is	**OPEN**
□	**VERIFY**	Vent **9AV4** is	**OPEN**
□	**VERIFY**	Vent **10AV1** is	**OPEN**
□	**VERIFY**	Vent **10AV2** is	**OPEN**
□	**VERIFY**	Vent **10AV3** is	**OPEN**
□	**VERIFY**	Vent **10AV4** is	**OPEN**
□	**VERIFY**	Vent **11AV1** is	**OPEN**
	PRESS	Emergency fan **OFF** button at gate **10GE1**	
	WAIT	For **90 sec** timeout counter	
□	**VERIFY**	Fan **9EF2** is	**OFF**
□	**VERIFY**	Fan **10EF1** is	**OFF**
□	**VERIFY**	Fan **11EF1** is	**OFF**
□	**VERIFY**	Fan **10XEF1** is	**OFF**
□	**VERIFY**	Fan **10XEF2** is	**OFF**
□	**VERIFY**	Fan **10XSF1** is	**OFF**
□	**VERIFY**	Fan **10XSF2** is	**OFF**
□	**VERIFY**	Vent **9AV1** is	**CLOSED**
□	**VERIFY**	Vent **9AV2** is	**CLOSED**
□	**VERIFY**	Vent **9AV3** is	**CLOSED**
□	**VERIFY**	Vent **9AV4** is	**CLOSED**
□	**VERIFY**	Vent **10AV1** is	**CLOSED**
□	**VERIFY**	Vent **10AV2** is	**CLOSED**
□	**VERIFY**	Vent **10AV3** is	**CLOSED**
□	**VERIFY**	Vent **10AV4** is	**CLOSED**
□	**VERIFY**	Vent **11AV1** is	**CLOSED**

□ **Check for acceptance of Test Emergency fan ON/OFF controls at 10GE1 in Mode 24**

1.7 Test MCR reset of Emergency ON/OFF at 10GE1 in Mode 24

□	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	PRESS	Emergency fan **ON** button at gate **10GE1**	
	WAIT	For **90 sec** timeout counter	
□	**VERIFY**	Fan **9EF2** is	**ON**
□	**VERIFY**	Fan **10EF1** is	**ON**
□	**VERIFY**	Fan **11EF1** is	**ON**
□	**VERIFY**	Fan **10XEF1** is	**ON**
□	**VERIFY**	Fan **10XEF2** is	**ON**
□	**VERIFY**	Fan **10XSF1** is	**ON**
□	**VERIFY**	Fan **10XSF2** is	**ON**
□	**VERIFY**	Vent **9AV1** is	**OPEN**
□	**VERIFY**	Vent **9AV2** is	**OPEN**
□	**VERIFY**	Vent **9AV3** is	**OPEN**
□	**VERIFY**	Vent **9AV4** is	**OPEN**
□	**VERIFY**	Vent **10AV1** is	**OPEN**
□	**VERIFY**	Vent **10AV2** is	**OPEN**
□	**VERIFY**	Vent **10AV3** is	**OPEN**
□	**VERIFY**	Vent **10AV4** is	**OPEN**
□	**VERIFY**	Vent **11AV1** is	**OPEN**
	PRESS	Emergency fan **OFF** button at **MCR**	
	WAIT	For **90 sec** timeout counter	
□	**VERIFY**	Fan **9EF2** is	**OFF**
□	**VERIFY**	Fan **10EF1** is	**OFF**
□	**VERIFY**	Fan **11EF1** is	**OFF**
□	**VERIFY**	Fan **10XEF1** is	**OFF**
□	**VERIFY**	Fan **10XEF2** is	**OFF**
□	**VERIFY**	Fan **10XSF1** is	**OFF**
□	**VERIFY**	Fan **10XSF2** is	**OFF**
□	**VERIFY**	Vent **9AV1** is	**CLOSED**
□	**VERIFY**	Vent **9AV2** is	**CLOSED**
□	**VERIFY**	Vent **9AV3** is	**CLOSED**
□	**VERIFY**	Vent **9AV4** is	**CLOSED**
□	**VERIFY**	Vent **10AV1** is	**CLOSED**
□	**VERIFY**	Vent **10AV2** is	**CLOSED**
□	**VERIFY**	Vent **10AV3** is	**CLOSED**
□	**VERIFY**	Vent **10AV4** is	**CLOSED**

□ **Check for acceptance of Test MCR reset of Emergency ON/OFF at 10GE1 in Mode 24**

1.8 Test local fan controls in service building 1010A Mode 24

□	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	PRESS	Fan **ON** button at fan box	
□	**VERIFY**	**1010A fan** is	**ON**
□	**VERIFY**	**1010A vent** is	**OPENED**
	TURN OFF	**1010A fan** using **MCR Fan OFF button**	
□	**VERIFY**	Attempt to turn off **1010A fan** using **MCR Fan OFF button**	**FAIL**
	PRESS	Fan **OFF** button at fan box	
□	**VERIFY**	**1010A fan** is	**OFF**
□	**VERIFY**	**1010A vent** is	**CLOSED**

□ **Check for acceptance of Test local fan controls in service building 1010A Mode 24**

1.9 Test Division A loss of Remote I/O in Mode 24

□	**VERIFY**	CD Key switch is **set for**	**XY ARCS**
□	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	SET	**RHIC Primary Beam Stop Withdraw command**	**OUT**
□	**VERIFY**	**MCR** sees **RHIC Injection CD** on CD pg	**DISABLED**
□	**VERIFY**	**MCR** sees **RHIC Permit Link**	**ENABLED**
□	**VERIFY**	**MCR** sees **RHIC Injection inhibit**	**OFF**
□	**VERIFY**	**MCR** sees **RHIC ring inhibit**	**OFF**
	UNPLUG	Remote **I/O** cable from **Scanner module** in **Peer 15A**	
□	**VERIFY**	**MCR** sees **Peer 15 Div A CD RIO** on H/W pg	**FAULT**
□	**VERIFY**	**MCR** sees **Peer 15 Div A** go to	**MODE 2**
□	**VERIFY**	**MCR** sees **RHIC Injection CD** on CD pg	**DISABLED**
□	**VERIFY**	**MCR** sees **Div A RHIC Permit Link**	**DISABLED**
□	**VERIFY**	**MCR** sees **Div A RHIC Injection inhibit**	**ON**
□	**VERIFY**	**MCR** sees **Div A RHIC ring inhibit**	**ON**
□	**VERIFY**	**MCR** sees **Div A RHIC Injn rhbk latch**	**ON**
□	**VERIFY**	**MCR** sees **Div A RHIC rhbk latch**	**ON**
□	**VERIFY**	**MCR** sees on CD pg **W**	**REACHBACK**
□	**VERIFY**	**MCR** sees on CD pg **RHIC**	**REACHBACK**
□	**VERIFY**	**MCR** sees on CD pg **BS G3**	**IN**
	REPLACE	Remote **I/O** cable at **Scanner module** in **Peer 15A**	
	RESET	**NG CRIT I/O** condition at **MCR**	
□	**VERIFY**	**MCR** sees **CD RIO**	**OK**

	PLACE	**Peer 15** in **Mode 2**	
□	**VERIFY**	**MCR** sees **Peer 15** in **Safe Access**	**MODE 2**
	PLACE	**Peer 15** in **Mode 16**	
□	**VERIFY**	**MCR** sees **Peer 15** in **Controlled Access**	**MODE 16**

□ **Check for test acceptance of Division A loss of Remote I/O in Mode 24**

1.10 Test Division B loss of Remote I/O in Mode 24

□	**VERIFY**	CD Key switch is **set for**	**XY ARCS**
□	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	SET	**RHIC Primary Beam Stop Withdraw command**	**OUT**
□	**VERIFY**	**MCR** sees **RHIC Injection CD** on CD pg	**DISABLED**
□	**VERIFY**	**MCR** sees **RHIC Permit Link**	**ENABLED**
□	**VERIFY**	**MCR** sees **RHIC Injection inhibit**	**OFF**
□	**VERIFY**	**MCR** sees **RHIC ring inhibit**	**OFF**
	UNPLUG	Remote **I/O** cable from **Scanner module** in **Peer 15B**	
□	**VERIFY**	**MCR** sees **Peer 15 Div B CD RIO** on H/W pg	**FAULT**
□	**VERIFY**	**MCR** sees **Peer 15 Div B** go to	**MODE 2**
□	**VERIFY**	**MCR** sees **RHIC Injection CD** on CD pg	**DISABLED**
□	**VERIFY**	**MCR** sees **Div B RHIC Permit Link**	**DISABLED**
□	**VERIFY**	**MCR** sees **Div B RHIC Injection inhibit**	**ON**
□	**VERIFY**	**MCR** sees **Div B RHIC ring inhibit**	**ON**
□	**VERIFY**	**MCR** sees **Div B RHIC Injn rhbk latch**	**ON**
□	**VERIFY**	**MCR** sees **Div B RHIC rhbk latch**	**ON**
□	**VERIFY**	**MCR** sees on CD pg **W**	**REACHBACK**
□	**VERIFY**	**MCR** sees on CD pg **RHIC**	**REACHBACK**
□	**VERIFY**	**MCR** sees on CD pg **BS G3**	**IN**
	REPLACE	Remote **I/O** cable at **Scanner module** in **Peer 15B**	
	RESET	**NG CRIT I/O** condition at **MCR**	
□	**VERIFY**	**MCR** sees **CD RIO**	**OK**
	PLACE	**Peer 15** in **Mode 2**	
□	**VERIFY**	**MCR** sees **Peer 15** in **Safe Access**	**MODE 2**
	PLACE	**Peer 15** in **Mode 16**	
□	**VERIFY**	**MCR** sees **Peer 15** in **Controlled Access**	**MODE 16**

□ **Check for test acceptance of Division B loss of Remote I/O in Mode 24**

1.11 Sweep tests in Mode 24

□	**VERIFY**	Peer 15 gate: **11GS1** is	**CLOSED**
	RESET	**Peer 15 gates:** 9GS1, 9EL1, 9GI1, 9ED1, 10GE1, 10GI1, 10EL1, 10ED1	
□	**VERIFY**	**Peer 15 gates:** □ 9GS1, □ 9EL1, □ 9GI1, □ 9ED1, □ 10GE1, □ 10GI1, □ 10EL1, □ 10ED1 are	**RESET**
	SWEEP	**Peer 15 Zones:** 9Z1, 10Z1, 10Z2	
□	**VERIFY**	**Peer 15 Zones:** □ 9Z1, □ 10Z1, □10Z2 are	**SWEPT**
	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**Peer 15** is in **No Access**	**MODE 24**
	PLACE	**Peer 15** in **Mode 16**	
□	**VERIFY**	**Peer 15** is in **Controlled Access**	**MODE 16**

FOLLOW **Test Schedule in Table 3, below**

Zone	Gate	Open gate	Verify sweep lost	Verify cannot sweep with gate open	Close gate	Force sweep	Verify cannot go to Mode 24	Reset gate	Verify can go to Mode 24	Go to Mode 16 & next gate
9Z1	**9GI1**		□	□			□		□	
10Z1	**10GE1**		□	□			□		□	
10Z2	**10ED1**		□	□			□		□	

Table 3 – Sweep tests in Mode 24

□ **Check for acceptance of Sweep tests in Mode 24**

1.12 Chipmunk Tests in Mode 24

	ATTACH	**Test Box** to **Chipmunk** prior to test	
	PLACE	**Peer 15** in **Mode 24**	
□	**VERIFY**	**MCR** sees **Peer 15** in **No Access**	**MODE 24**
	WAIT	For **Beam Imminent Alarm** to stop sounding	
	SET	**RHIC Primary Beam Stop Withdraw command**	**OUT**
□	**VERIFY**	**MCR** sees **RHIC Injection CD**	**DISABLED**
□	**VERIFY**	**MCR** sees **RHIC Permit Link**	**ENABLED**
□	**VERIFY**	**MCR** sees **RHIC Injection inhibit**	**OFF**
□	**VERIFY**	**MCR** sees **RHIC ring inhibit**	**OFF**

C'munk	Press & verify div A trip	Verify Peer 15 stays in mode 24	Verify div A Rhic ring inh ON	Verify div A Rhic permit link disabled	Verify div A Rhic Inj. Inh ON	Reset all Systems & cycle BS cmd to OUT	Verify div A Rhic ring inh OFF	Verify div A Rhic permit link enabled	Verify div A Rhic Inj. Inh OFF	Goto table 5 for div B trip
C98		□	□	□	□		□	□	□	

Table 4 – Division A trip test in Mode 24

C'munk	Press & verify div B trip	Verify Peer 15 stays in mode 24	Verify div B Rhic ring inh ON	Verify div B Rhic permit link disabled	Verify div B Rhic Inj. Inh ON	Reset all Systems & cycle BS cmd to OUT	Verify div A & B Rhic ring inh OFF	Verify div A & B Rhic permit link enabled	Verify div A & B Rhic Inj. inh OFF	Goto table 6 for div A fails
C98		□	□	□	□		□	□	□	

Table 5 – Division B Trip test in Mode 24

C'munk	Press & verify div A fails	Verify Peer 15 divA goes to mode 2	Verify div A Rhic ring inh ON	Verify div A Rhic permit link disabled	Verify div A Rhic Inj. Inh ON	Reset all systms & place Peer 15 div A & B in Mode 2	Place Peer 15 in mode 24 & alarm stop	Verify pmry BS with-draw cmd is OUT	Verify div A & B Rhic ring inh OFF	Verify div A & B Rhic permit link enabled	Verify div A & B Rhic Inj. Inh OFF	Go to table 7 for div B fails
C98		□	□	□	□			□	□	□	□	

Table 6 – Division A Fails test in Mode 24

C'munk	Press & verify div B fails	Verify Peer 15 divB goes to mode 2	Verify div B Rhic ring inh ON	Verify div B Rhic permit link disabled	Verify div B Rhic Inj. Inh ON	Reset all systms & place Peer 15 div A & B in Mode 2	Place Peer 15 in mode 24 & alarm stop	Verify pmry BS with-draw cmd is OUT	Verify div A & B Rhic ring inh OFF	Verify div A & B Rhic permit link enabled	Verify div A & B Rhic Inj. Inh OFF	See end of test instrns below
C98		□	□	□	□			□	□	□	□	

Table 7 – Division B Fails test in Mode 24

End of Test Instructions:

	DETACH	**Test Box** from **Chipmunk** after test
	CONNECT	**Cable to Chipmunk**
	RESET	Chipmunk **faults** at **MCR**
□	**VERIFY**	**MCR** sees **Chipmunk** **OK**
	ATTACH	**Test Box** to next **Chipmunk** for test / or **end Chipmunk test**
	START	**Test sequence** at **Table 4**

□ **Check for acceptance of Chipmunk Tests in Mode 24**

END OF TEST PROCEDURE

TTL: Sign for completion of initial testing: _____

Date: _____/____/_____

TTL: Sign for completion of final testing: _____

Date: _____/_____/_____